

APPENDIX M

METHODOLOGY USED IN THE RANGE ANALYSIS

METHODOLOGY FOR VEGETATIVE INVENTORY

A vegetative inventory on public land in the Headwaters Resource Area was conducted beginning in October of 1979 and field work was completed in November of 1981. The data collected have been used in this document to classify sites, determine the vegetative condition of plant communities, and determine the suitability of the land for livestock grazing.

Classification

Two classification systems were used in site identification. Sites dominated by grassland, shrub, or a mixture of grass/shrub vegetation were classified according to the Soil Conservation Service's *Montana Grazing Guides* (1974) as amended. This system interprets the site based upon geographic region (in this case the foothills and mountains of Montana); soil characteristics, including texture and depth; mean annual precipitation; and climax vegetation, to the extent that it can be interpreted for the site.

Sites having the potential to produce a 10% or greater canopy coverage of trees in near climax condition were classified according to *Forest Habitat Types of Montana* (USDA, FS 1977a). This system interprets the site based upon the potential climax tree species and indicator plants that occur in the undergrowth.

Vegetative Condition

Inventory crews first identified and delineated the boundaries for the sites to be inspected. Estimates of plant species composition, based on weight, were then made for the plant community found on each site. Using tables in the SCS's *Montana Grazing Guide*, and more detailed data in the SCS's unpublished Technical Range Site Descriptions for Montana, the present species composition was compared to the potential climax composition for the site. A condition rating was computed for the vegetation on each site. This rating represents the extent to which the site differs from potential climax. While this condition rating is often referred to as range condition, this document refers to the rating as vegetative condition. This is done to better separate this rating from a rating of overall resource condition, and to

inject a less subjective interpretation of the term condition.

Four condition classes are set forth by the SCS. A plant community in excellent condition exhibits little change in species composition when compared to the potential climax plant community for the site. Between 100% and 75% of the kinds and amounts of vegetation produced would be found in climax. Good condition communities produce between 75% and 51% of the kinds and amounts of vegetation found in climax. Fair condition communities produce between 50% and 26% of the kinds and amounts of vegetation found in climax. Poor condition communities produce between 25% and 0% of the kinds and amounts of vegetation found in climax. A fifth condition class of unclassified was used in the inventory to designate vegetative communities that could not be legitimately compared to a climax community. The unclassified rating was applied to areas that had been plowed and seeded, areas where native vegetation has been manipulated by mechanical or chemical means, areas of undergrowth communities having dense forest canopies or heavy duff accumulation, etc.

Suitability

The suitability of each site for livestock grazing was recorded. One of four ratings was assigned to each site: suitable, no environmental factors restricting livestock access and use of the site; potentially suitable, environmental factors now limit livestock access or use, but changes could be made that would make the site suitable; unsuitable, environmental factors now limit livestock access or use that cannot be changed; and limited suitability, most commonly used for areas producing ephemeral vegetation. The major criteria used to rate range land suitability are: distance from water, slope or other physical barriers, forage production, and the erosion rating for the soil. BLM Instruction Memorandum 78-134 was used in applying these criteria.

ALLOTMENT CATEGORIZATION

Specific criteria were developed to evaluate the management situation for each allotment and single out those allotments that will require a change in present grazing management in order to resolve conflicts in the use of resources. The present condition of the resource, its potential to respond to management changes, the current management situation, and the socioeconomic feasibility of changing grazing management were all used as criteria. These are based on current BLM policy, which can be found in W.O. I.M. 82-292. Each criterion was rated independently by a cross section of resource specialists familiar with the allotment. Each specialist recommended placement of the allotment into one of three management categories. Finally, the ratings and recommendations were reviewed by the Area Manager who made a tentative decision on how the allotment would be categorized. Appendix D places each allotment into one of the three management categories and describes livestock use in each allotment. The management category for an allotment may be changed after the RMP/EIS is completed in 1983, or may be changed when resource conditions change or new data becomes available.

Allotments Where Change is Not Feasible

These allotments are best described as follows: little, if any, conflict exists in resource use; overall, resource values are relatively low; the biological potential for response to different management is low; the size or potential productivity of the allotment does not warrant the expenditure of funds for supervision; and/or the cost of range improvements needed to change grazing management exceeds the expected benefits. These allotments are referred to as custodial management, or C allotments.

Allotments Where Change is Not Needed

These allotments are best described as follows: vegetative and watershed conditions are satisfactory; the allotment has the potential for high resource production and is producing near its potential; there are no serious resource use conflicts; and/or the allotment's size and physical characteristics could warrant investment of public funds for range improvements and/or supervision. These allotments are referred to as maintenance management, or M allotments.

Allotments Where Change is Needed

These allotments are best described as follows: vegetative and/or watershed conditions are not satisfactory; the allotment's potential production is high to moderate, but it is producing below its potential; there are substantive conflicts with other resource uses; and/or the allotment's size, physical characteristics, and the anticipated benefits from management changes warrant investment of public funds for range improvements and/or supervision. These allotments are referred to as improvement management, or I allotments.

GRAZING MANAGEMENT PROBLEMS, OPPORTUNITIES, AND OBJECTIVES

Table M-1 describes the most common problems that are encountered in the administration and management of livestock grazing on public land in the resource area. It also describes in general terms what management actions can be used to correct the situations. The table is intended to provide an overview of how grazing management or administration could be improved to favor livestock and/or forage production. The situations described do not apply to all allotments nor do the management actions take into account multiple use management considerations.

Appendix E presents allotment specific problems and objectives that consider multiple use management. Economic analyses will be applied to each allotment that requires an investment of public funds to implement needed changes.

TABLE M-1
PROBLEMS, OPPORTUNITIES AND OBJECTIVES FOR GRAZING MANAGEMENT

Situation	Management Action
Grazing season and selective grazing habits of different kinds of livestock can reduce the quality and quantity of vegetation produced by a plant community.	<p>Change the season of use and/or the class or kind of livestock.</p> <p>Implement rotational grazing systems that will provide for plant maintenance requirements.</p>
Livestock use can be poorly distributed within an allotment or pasture. This can result in heavy utilization of some sites while others may receive little or no grazing use.	<p>Develop new sources of water to distribute livestock more evenly.</p> <p>Construct drift fences to alter traditional grazing patterns.</p> <p>Specify placement of salt and mineral supplements.</p> <p>Require herding of livestock.</p> <p>Authorize the class or kind of livestock that will best utilize the allotment.</p>
Current levels of livestock use may exceed the carrying capacity of an allotment.	Monitor actual livestock use and resulting levels of utilization to determine the proper carrying capacity.
Some sites that are now producing a quality and quantity of forage well below their potential have a poor potential to respond to changes in grazing management alone.	Restore productivity of these sites through mechanical treatment and/or seeding with native species or well-adapted introduced species.
Investments in range improvements needed to implement changes in grazing management often do not have favorable benefit/cost ratios.	<p>Solicit contributions from range users and other parties benefiting from changed grazing management.</p> <p>Design grazing management systems that require a minimum investment in range improvements, but will meet the stated objectives.</p>
Plant and animal pests can adversely affect livestock and vegetative productivity.	In cooperation with other affected land owners, take actions to control concentrations of pests.